

\*ORIGINAL TO ZEROX

# WITHDRAWN

Commercial Standard **CS193-53**

---

## Standard Stock Ponderosa Pine Insulating-Glass Windows and Sash

A RECORDED VOLUNTARY STANDARD OF THE TRADE

---

### COMMODITY STANDARDS

Simplified Practice Recommendations and Commercial Standards are developed by manufacturers, distributors, and users in cooperation with the Commodity Standards Division of the Office of Technical Services, and with the National Bureau of Standards.

The purpose of Simplified Practice Recommendations is to eliminate avoidable waste through the establishment of standards of practice for stock sizes and varieties of specific commodities that currently are in general production and demand. The purpose of Commercial Standards is to establish standard methods of test, rating, certification, and labeling of commodities, and to provide uniform bases for fair competition.

The adoption and use of a Simplified Practice Recommendation or a Commercial Standard is voluntary. However, when reference to a Commercial Standard is made in contracts, labels, invoices, or advertising literature, the provisions of the standard are enforceable through usual legal channels as a part of the sales contract.

A Simplified Practice Recommendation or a Commercial Standard originates with the proponent industry. The sponsors may be manufacturers, distributors, or users of the specific product. One of these three elements of industry submits to the Commodity Standards Division the necessary data to be used as the basis for developing a standard of practice. The Division, by means of assembled conferences or letter referenda, or both, assists the sponsor group in arriving at a tentative standard of practice and thereafter refers it to the other elements of the same industry for approval or for constructive criticism that will be helpful in making any necessary adjustments. The regular procedure of the Division assures continuous servicing of each effective Simplified Practice Recommendation and Commercial Standard, through review and revision, whenever, in the opinion of the industry, changing conditions warrant such action.

---

UNITED STATES DEPARTMENT OF COMMERCE

Sinclair Weeks, Secretary

JULY 7, 1958

COMMERCIAL STANDARD CS193-53  
STANDARD STOCK PONDEROSA PINE INSULATING  
GLASS WINDOWS AND SASH

A M E N D M E N T \*

---

THE AMENDMENT DESCRIBED BELOW WILL BECOME AN EFFECTIVE PART  
OF COMMERCIAL STANDARD CS193-53 ON AUGUST 25, 1958.

---

PAGE 4. PARAGRAPH 3.12 GLAZING. - ADD THE FOLLOWING SENTENCE  
AT THE END OF THIS PARAGRAPH:

"AS AN ALTERNATIVE METHOD OF GLAZING, UNLESS OTHERWISE  
SPECIFIED, THE SASH MAY BE GLAZED IN SOLID STICKING AT  
THE TIME OF ASSEMBLY, AFTER THE BEDDING COMPOUND HAS BEEN  
APPLIED IN THE SASH GROOVE."

COMMODITY STANDARDS DIVISION  
OFFICE OF TECHNICAL SERVICES  
U. S. DEPARTMENT OF COMMERCE

---

\* THE STANDING COMMITTEE FOR CS193-53 HAS APPROVED THE ABOVE  
AMENDMENT TO THE COMMERCIAL STANDARD IN ORDER TO PROVIDE FOR  
SOLID STICKING AS A MANUFACTURER'S OPTIONAL METHOD OF GLAZING.  
ACCEPTORS AND OTHERS INTERESTED WERE NOTIFIED ON JANUARY 31,  
1958, AND ALL COMMENT HAS BEEN CONSIDERED AND THE AMENDMENT  
ADJUSTED ACCORDINGLY.

# Standard Stock Ponderosa Pine Insulating-Glass Windows and Sash<sup>1</sup>

[Effective July 20, 1953]

## 1. PURPOSE

1.1 The purpose of this Commercial Standard is to establish standard sizes, layouts, and construction of ponderosa pine insulating-glass stock windows and sash for the guidance of producers, distributors, architects, builders, and the public; to provide the building industry with standard insulating-glass windows and sash; to avoid delays and misunderstandings; and to effect economies from the producer to the ultimate user through a wider utilization of windows and sash of this type.

## 2. SCOPE

2.1 This standard provides minimum requirements for standard stock ponderosa pine insulating-glass windows and sash in the  $1\frac{3}{8}$ -in. thickness to accommodate insulating glass of  $\frac{1}{2}$ -in. nominal thickness; also, requirements for stationary sash  $2\frac{1}{4}$  in.<sup>2</sup> thick overall to accommodate insulating glass of 1-in. nominal thickness. It covers construction, grades, and tolerances for these requirements.

2.2 Standard layouts and essential construction details are given for the following:

*Check rail windows*

$1\frac{3}{8}$  in. thick

*Stationary sash*

$2\frac{1}{4}$  in. thick, overall

## 3. GENERAL REQUIREMENTS

3.1 All standard stock ponderosa pine insulating-glass windows and sash shall meet the quality requirements set forth in paragraphs 3.2 to 3.13.

3.2 *Material*.—All windows and sash shall be made of ponderosa pine which has been dried to a moisture content of 6 to 12 percent before manufacture and which is practically free from defects. Northern white pine, western (Idaho) white pine, and sugar pine are equally acceptable. Light-brown water stain and light-red kilnburn shall not be considered defects.

3.3 *Workmanship*.—Windows and sash shall be well manufactured. Both sides of all assembled sash and the top face of bottom-sash check rail shall be machine sanded.

3.4 *Construction*.—At the option of the manufacturer, all  $1\frac{3}{8}$ -in. windows and sash shall be made by what is known as mortised-

<sup>1</sup> Insulating glass is two lights of glass hermetically sealed around all edges with a space between lights.

<sup>2</sup> In this standard,  $2\frac{1}{4}$ -in. sash refers to details (A) and (B) as shown in figure 2.

and-tenoned construction, or slotted construction. All  $2\frac{1}{4}$ -in. sash shall be made by what is known as slotted construction. When using mortised-and-tenoned construction, tenon widths shall be not less than two-thirds of the overall rail width. When using slotted construction, the tenon shall be the full width of the rail. Sash shall be well clamped together and all rail tenons carefully pinned with barbed steel pins set through the tenons. Not less than 2 pins at each end of top rail and bottom rail, and not less than 1 pin at each end of check rail shall be used. All windows and sash shall have 1 barbed steel pin inserted at each end of all horizontal-light bars. Machine-driven pins, barbed or smooth, not less than 0.005 sq. in. in cross sectional area, may be used. Stiles and rails shall have solid stickings. All joints shall be coped and well fitted. All stops or beads shall be mitered. Stiles of all windows of  $1\frac{3}{8}$ -in. nominal thickness shall be machined for balances, or weights, and cords as specified.

3.5 *Bottom rails.*—Bottom rails of all windows and sash shall be beveled to a pitch of  $14^\circ$  with a tolerance of plus or minus  $1^\circ$  (approximately 3 to 12 in.).

3.6 *Check rails.*—Check rails shall be beveled according to details as given in figure 1.

3.7 *Sticking.*—The type of sticking used shall be optional with the manufacturer.

3.8 *Prefitting.*—All windows and sash shall be made to prefit measurements as specified in the layouts. A size tolerance of plus or minus  $\frac{1}{16}$  in. shall be allowed.

3.9 *Sanded thickness.*—The finished thickness of all windows and sash of  $1\frac{3}{8}$ -in. nominal thickness shall be  $1\frac{11}{32}$  in. after sanding, with a tolerance of plus or minus  $\frac{1}{32}$  in. The finished thickness of all sash of  $2\frac{1}{4}$ -in. nominal thickness shall be not less than  $2\frac{7}{32}$  in. after sanding.

3.10 *Parts tolerance.*—A tolerance of  $\frac{1}{32}$  in., plus or minus, shall be allowed in the overall width of all machined parts.

3.11 *Preservative treatment.*—All windows and sash shall be water-repellent preservative treated at the factory in accordance with the National Woodwork Manufacturers Association's minimum standards. Beads and stops shall be treated after mitering.

3.12 *Glazing.*—All windows and sash shall be glazed with insulating glass in accordance with recommendations of the glass manufacturers. All  $1\frac{3}{8}$ -in. windows and sash shall be wood-stop glazed from the outside. A wood glass bead,  $1\frac{1}{32}$  in. by  $1\frac{5}{32}$  in., shall be used, and this bead shall be securely fastened in place. All  $2\frac{1}{4}$ -in. sash shall be wood-stop glazed from the outside with a wood-stop not less than  $\frac{1}{2}$  in. thick fastened to the sash by  $1\frac{1}{2}$ -in. screws on 12-in. centers.

3.13 *Glass clearance.*—There shall be a clearance of  $\frac{3}{32}$  in. between the edges of the glass and the stiles, rails, and muntins on all windows and sash of  $1\frac{3}{8}$ -in. nominal thickness. There shall be a  $\frac{1}{4}$ -in. clearance between the edges of the glass and the stiles and rails on all  $2\frac{1}{4}$ -in. sash.

#### 4. DESIGNS AND LAYOUTS

rails, and check rails of all windows and sash of 1  $\frac{3}{8}$ -in. nominal thickness are  $\frac{15}{32}$  in. greater than face measurements; and overall widths for muntins,  $\frac{15}{16}$  in. greater.

## 5. GRADING

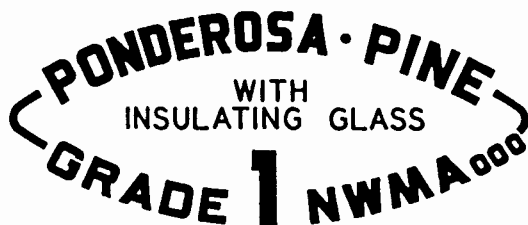
5.1 All standard stock ponderosa pine insulating-glass windows and sash produced in conformity with the general requirements set forth in paragraphs 3.1 to 3.13 of this standard shall be known as *grade 1* quality. (See par. 5.3.)

5.2 In order to assure the purchaser that he is getting ponderosa pine insulating-glass windows and sash of the quality specified, producers may individually or in concert with their trade associations issue guaranties, or grade-mark each window and sash by a stamp, brand, or label as conforming to this standard. The following wording is recommended for the label:

This GRADE 1 ponderosa pine insulating-glass window (or sash) is guaranteed by the manufacturer to conform to Commercial Standard CS193-53, as developed by the trade under the procedure of the Commodity Standards Division, and issued by the U. S. Department of Commerce.

-----  
(Name of manufacturer)

5.3 *Grade marking.*—The grade-mark shown below has been adopted by the National Woodwork Manufacturers Association, Inc., as a means of assuring consumers and distributors that ponderosa pine insulating-glass windows and sash conform to the high standards of quality defined herein.



## 6. STANDARD DETAIL REQUIREMENTS

6.1 Details of 1  $\frac{3}{8}$ -in. check rail windows and sash are shown in figure 1. Details of 2  $\frac{1}{4}$ -in. sash are shown in figure 2.

6.2 *Sticking profiles.*—Slight variations in profiles of stickings are permitted among manufacturers under this standard. Likewise, the bottom rails of all 1  $\frac{3}{8}$ -in. check rail windows may, at the option of the manufacturer, be furnished plain beveled, as shown, or plowed or shaped in conformity with the manufacturer's regular shop practice.

## 7. STANDARD OPENING SIZES

7.1 The opening sizes for windows and sash given on pages 10 and 11 of this standard are normally employed in structures of modular design, and were designed to meet the basic requirements of Ameri-

can Standards Association (ASA) Project A62, Coordination of Dimensions of Building Materials and Equipment, sponsored by the American Institute of Architects and the Producers' Council.

7.2 The broad purpose of Project A62 is to secure maximum economies and simplification for the building industry through improved standardization. Since it is not practicable to standardize the finished building, this broad purpose is applied to building products and methods by the coordination of sizes for component building parts.

7.3 The basis for this coordination is a 4-in. increment applied to the sizes and assembly of parts and to the layout of buildings. The increment or module, applying to both vertical and horizontal dimensions, serves as the spacing for a uniform three-dimensioned grid to which the building layout and details are referenced.

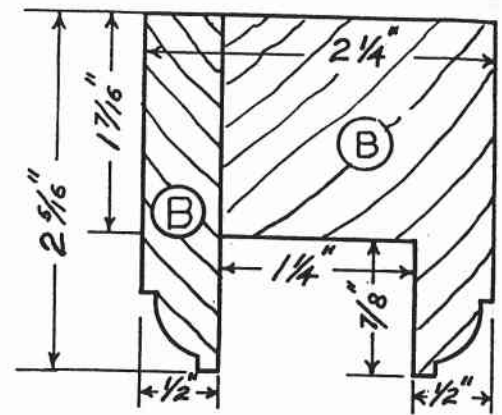
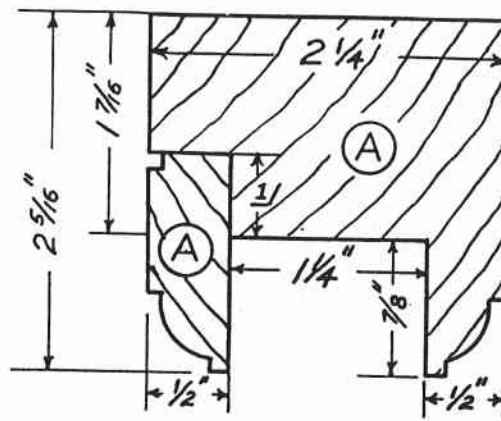
7.4 The sizes and dimensions for coordination, while based on a 4-in. module or increment, are not necessarily multiples of 4 in. From the illustrations that follow it will be seen how the new standards for double-hung windows meet the requirements for coordination by being built to the following measurements:

Widths\_\_\_\_\_ Multiples of 4 in.

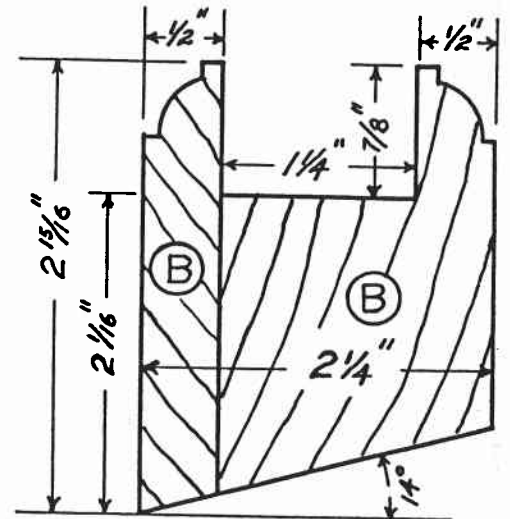
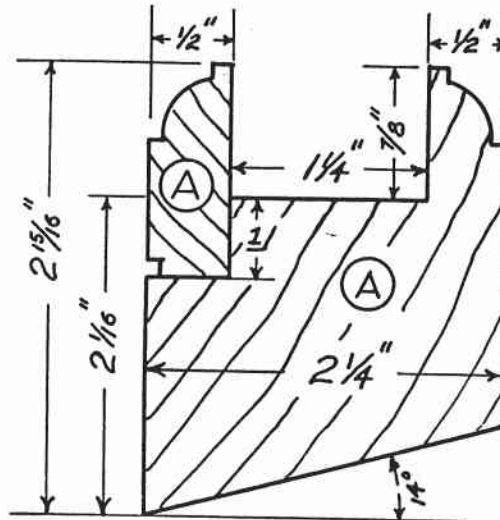
Heights\_\_\_\_\_ Multiples of 4 in., plus 2 in.

7.5 It will be observed from figure 3 that the grid opening is a multiple of 4 in. both in width and in height. A window and its frame will meet the requirements for coordination if so constructed that it can be used in any number of 4-in. increments or modules, as indicated by the dotted grid lines. It will be noted that the standard window opening in all cases is 4 in. less in width and 6 in. less in height than the grid opening.





## TOP RAIL AND STILES



## BOTTOM RAIL

- 1/ The depth of the rabbet is optional with the manufacturer, except that it shall not be less than 1/2 inch.

Stationary sash shall be made in accordance with either of the above details, (A) or (B), at the option of the manufacturer.

FIGURE 2. Details of insulating-glass stationary sash.

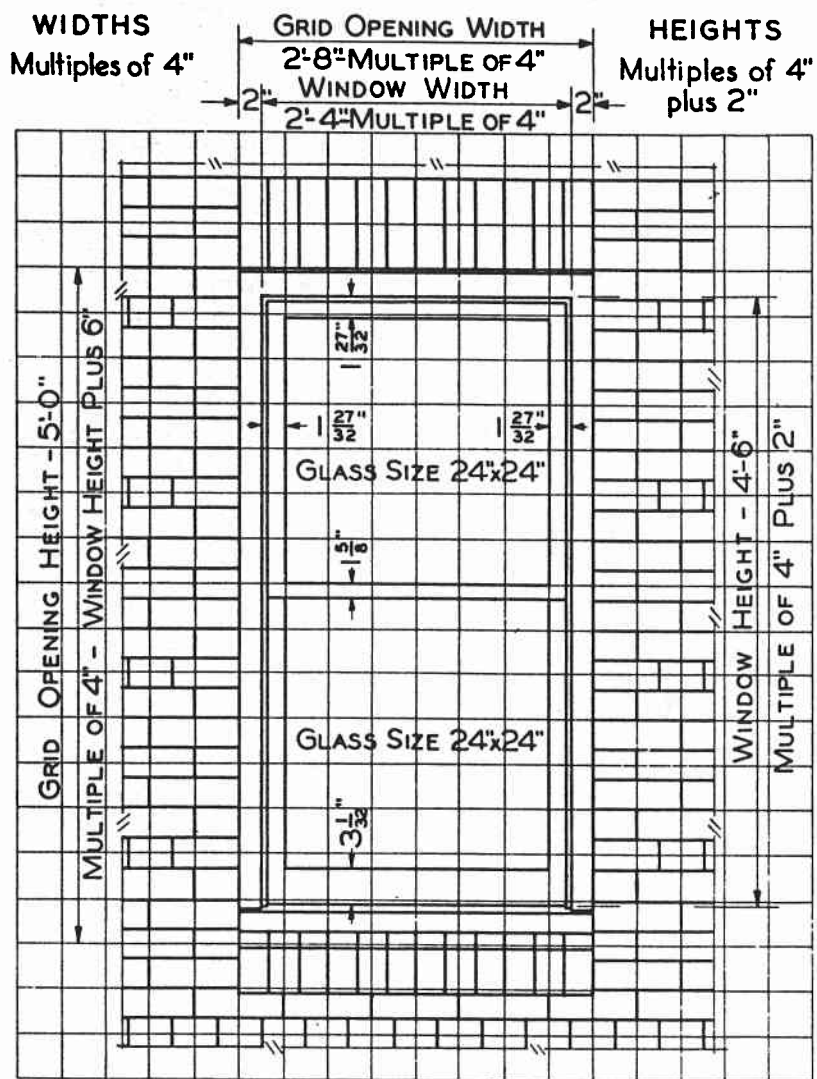


FIGURE 3. Relation of 1 3/8-in. insulating-glass window to grid opening—brick wall.

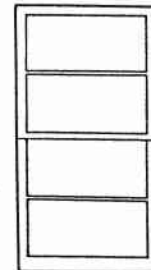
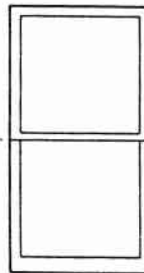
# INSULATING-GLASS CHECK RAIL WINDOWS

1  $\frac{3}{8}$  in. thick

NOTE.—Windows are made  $\frac{1}{8}$  in. narrower and  $\frac{1}{16}$  in. shorter than the sash opening sizes listed.

## Prefit face measurements (in.)

Stiles.....	1 $\frac{27}{32}$	Check rails.....	1 $\frac{5}{32}$
Top rail.....	1 $\frac{27}{32}$	Muntins.....	$\frac{7}{16}$
Bottom rail.....	3 $\frac{1}{32}$		

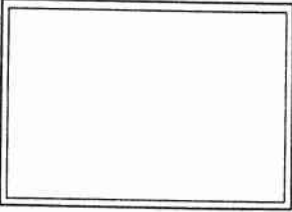


Sash opening sizes	TWO-LIGHT WINDOWS		FOUR-LIGHT WINDOWS	
	Glass sizes	Glass opening sizes	Glass sizes	Glass opening sizes
<i>ft. and in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>
2-0 x 4-6	20 x 24	20 $\frac{3}{16}$ x 24 $\frac{3}{16}$	20 x 11 $\frac{11}{16}$	20 $\frac{3}{16}$ x 11 $\frac{7}{8}$
5-2	28	28 $\frac{3}{16}$	13 $\frac{11}{16}$	13 $\frac{7}{8}$
2-4 x 3-2	24 x 16	24 $\frac{3}{16}$ x 16 $\frac{3}{16}$	-----	-----
4-6	24	24 $\frac{3}{16}$	24 x 11 $\frac{11}{16}$	24 $\frac{3}{16}$ x 11 $\frac{7}{8}$
5-2	28	28 $\frac{3}{16}$	13 $\frac{11}{16}$	13 $\frac{7}{8}$
2-8 x 3-2	28 x 16	28 $\frac{3}{16}$ x 16 $\frac{3}{16}$	-----	-----
4-6	24	24 $\frac{3}{16}$	28 x 11 $\frac{11}{16}$	28 $\frac{3}{16}$ x 11 $\frac{7}{8}$
5-2	28	28 $\frac{3}{16}$	13 $\frac{11}{16}$	13 $\frac{7}{8}$
3-0 x 3-2	32 x 16	32 $\frac{3}{16}$ x 16 $\frac{3}{16}$	-----	-----
4-6	24	24 $\frac{3}{16}$	32 x 11 $\frac{11}{16}$	32 $\frac{3}{16}$ x 11 $\frac{7}{8}$
5-2	28	28 $\frac{3}{16}$	13 $\frac{11}{16}$	13 $\frac{7}{8}$
3-4 x 4-6	36 x 24	36 $\frac{3}{16}$ x 24 $\frac{3}{16}$	36 x 11 $\frac{11}{16}$	36 $\frac{3}{16}$ x 11 $\frac{7}{8}$
5-2	28	28 $\frac{3}{16}$	13 $\frac{11}{16}$	13 $\frac{7}{8}$

# INSULATING-GLASS STATIONARY SASH

2 1/4 in. thick

NOTE.—Prefit sash are made 1/8 in. less in width than the sash opening sizes listed.

Prefit face measurements (in.)		
Stiles.....	1 7/16	
Top rail.....	1 7/16	
	2 1/16	
Bottom rail.....	<del>1 7/16</del>	
Sash opening sizes	Glass sizes	Glass opening sizes
<i>ft. and in.</i>	<i>in.</i>	<i>in.</i>
4-4 x 4-6	48 1/2 x 50	49 x 50 1/2
5-2	58	58 1/2
5-0 x 4-6	56 1/2 x 50	57 x 50 1/2
5-2	58 1/8	58 1/2
5-8 x 4-6	64 1/2 x 50	65 x 50 1/2
5-2	58	58 1/2
6-4 x 4-6	72 1/2 x 50	73 x 50 1/2
5-2	58	58 1/2
7-0 x 4-6	80 1/2 x 50	81 x 50 1/2
5-2	58	58 1/2
8-4 x 4-6	96 1/2 x 50	97 x 50 1/2
5-2	58	58 1/2

## 8. EFFECTIVE DATE

8.1 Having been passed through the regular procedure of the Commodity Standards Division, and approved by the acceptors hereafter listed, this Commercial Standard was issued by the United States Department of Commerce, effective from July 20, 1953.

EDWIN W. FLY,  
Chief, Commodity Standards Division.

## HISTORY OF PROJECT

On January 3, 1952, the National Woodwork Manufacturers Association requested the cooperation of the Commodity Standards Division in the establishment of a Commercial Standard for ponderosa pine insulating-glass windows and sash.

A draft of the proposed standard was submitted on February 15, 1952, to manufacturers, and to a number of technical, distributor, and consumer organizations for advance review and comment. All

comments were carefully considered and the draft adjusted to represent the composite views of all interested groups.

The recommended Commercial Standard was circulated on August 18, 1952, to the trade for further consideration and written acceptance. Comments received from a number of manufacturers indicated that a few additional changes should be made to improve and strengthen the standard in the best interests of all concerned. These modifications were referred on May 14, 1953, to all acceptors of record. Upon receipt of official acceptances estimated to represent a satisfactory majority of the production by volume, the standard was promulgated on June 19, 1953, as Commercial Standard CSI93-53, to become effective for new production on July 20, 1953.

Project Manager: J. W. Medley, Commodity Standards Division, Office of Industry and Commerce.

Technical Adviser: George W. Shaw, Building Technology Division, National Bureau of Standards.

### STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Commodity Standards Division, Office of Technical Services, U. S. Department of Commerce, which acts as secretary for the committee.

- F. F. BEIL, Curtis Cos., Inc., Clinton, Iowa (Chairman).
- W. A. NORMAN, Carr, Adams & Collier Co., Dubuque, Iowa.
- O. B. SMITH, Wm. Cameron & Co., Waco, Tex.
- E. C. SWANSON, Andersen Corp., Bayport, Minn.
- W. T. SPENCER, Spencer Lumber Co., Gastonia, N. C. (representing Carolina Lumber & Building Supply Association).
- HARRY H. STEIDLE, Prefabricated Home Manufacturers' Institute, 908 20th Street NW., Washington 6, D. C.
- MILLARD I. BINSWANGER, Binswanger & Co., Inc., P. O. Box 1539, Richmond, Va. (representing Southern Sash & Door Jobbers Association).
- R. D. SPENCER, Manager, Twindow Sales, Pittsburgh Plate Glass Co., Grant Building, Pittsburgh 19, Pa.
- RICHARD G. WHEELER, 3664 Curtis Street, San Diego, Calif. (representing American Institute of Architects).
- W. H. ERICSSON, Henry Ericsson Co., 228 North LaSalle Street, Chicago 1, Ill. (representing Associated General Contractors of America, Inc.).

## ACCEPTANCE OF COMMERCIAL STANDARD

If acceptance has not previously been filed, this sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this Commercial Standard.

Date \_\_\_\_\_

Commodity Standards Division,  
Office of Technical Services,  
United States Department of Commerce,  
Washington 25, D. C.

Gentlemen:

We believe that this Commercial Standard constitutes a useful standard of practice, and we individually plan to utilize it as far as practicable in the

production<sup>1</sup>                      distribution<sup>1</sup>                      purchase<sup>1</sup>  
of ponderosa pine insulating-glass windows and sash.

We reserve the right to depart from the standard as we deem advisable.

We understand, of course, that only those articles which actually comply with the standard in all respects can be identified or labeled as conforming thereto.

Signature of authorized officer \_\_\_\_\_  
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer \_\_\_\_\_

Organization \_\_\_\_\_  
(Fill in exactly as it should be listed)

Street address \_\_\_\_\_

City, zone, and State \_\_\_\_\_

<sup>1</sup> Underscore which one. Please see that separate acceptances are filed for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade associations, trade papers, etc., desiring to record their general support, the words "General support" should be added after the signature.

## TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement*—Commercial Standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs, and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility*.—The purpose of Commercial Standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the standard, where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility*.—The major function performed by the Department of Commerce in the voluntary establishment of Commercial Standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation*.—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or of the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication.

## ACCEPTORS

The organizations listed below have individually accepted this standard for use as far as practicable in the production, distribution, or purchase of ponderosa pine insulating-glass windows and sash. In accepting the standard, they reserved the right to depart from it as they individually deem advisable. It is expected that insulating-glass windows and sash which actually comply with the requirements of this standard in all respects will be regularly identified or labeled as conforming thereto, and that purchasers will require such specific evidence of conformity.

### ASSOCIATIONS (General Support)

American Specification Institute,  
Chicago, Ill.  
Associated General Contractors of America, Inc., Washington, D. C.  
Carolina Lumber & Building Supply Association, Charlotte, N. C.  
Michigan Association of Traveling Lumber, Sash & Door Salesmen, Detroit, Mich.  
Michigan Retail Lumber Dealers Association, Lansing, Mich.  
National Woodwork Manufacturers Association, Chicago, Ill.  
Southern Sash & Door Jobbers Association, Memphis, Tenn.

### FIRMS AND OTHER INTERESTS

Addison-Pudesal, Inc., Atlanta, Ga.  
Allen Millwork Manufacturing Corp., Shreveport, La.  
American Sash & Door Co., Kansas City, Mo.  
American Window Glass Co., Pittsburgh, Pa. (General support.)  
Andersen Corp., Bayport, Minn.  
Andrews, C. E., Lumber Co., New Bethlehem, Pa.  
Andrews, Jones, Biscoe & Goodell, Boston, Mass.  
Anson & Gilkey Co., Merrill, Wis.  
Associated Door & Plywood Co., Chicago, Ill.  
Athens Lumber Co., Inc., Athens, Ga.  
Baxter, C. B., & Co., Kansas City, Mo.  
Beasley & Sons Co., Nashville, Tenn.  
Bee Gee Window Co., Akron, Ohio  
Beuttler, Wm., Sioux City, Iowa.  
Birmingham Sash & Door Co., Birmingham, Ala.  
Bohnhoff Lumber Co., Inc., Los Angeles, Calif. (General support.)  
Bosman & Casson Inc., Harrison, N. J.  
Brockway-Smith-Haigh-Lovell Co., Charlestown District, Boston, Mass.  
Brown-Graves Co., Akron, Ohio  
Brust & Brust, Milwaukee, Wis.  
Buell & Co., Dallas, Tex.  
Buffalo, City of, Department of Public Works, Buffalo, N. Y.  
Buffelen Manufacturing Co., Fort Worth, Tex.  
Building Supplies Corp., Norfolk, Va.  
Cameron Lumber Co., Inc., Newburgh, N.Y.  
Cameron, Wm., & Co., Waco, Tex.  
Camlet, J. Thomas, Passaic, N. J.  
Cannon & Mullen, Salt Lake City, Utah  
Carlow Co., Los Angeles, Calif.  
Carr, Adams & Collier Co., Dubuque, Iowa  
Central of Georgia Railway Co., Savannah, Ga.  
Charlottesville Lumber Co. Inc., Charlottesville, Va.  
Cincinnati, City of, Department of Purchasing, Cincinnati, Ohio  
Coates, Henry T., & Associates, New York, N. Y.  
Collins, Kermit L., Dixfield, Maine  
Combination Door Co., Fond du Lac, Wis.  
Conrad & Cummings, Binghamton, N. Y.  
Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass.  
Corbin, P. & F., Division, American Hardware Corp., New Britain, Conn. (General support.)  
Cram & Ferguson, Boston, Mass.  
Crowell, Lancaster & Higgins, Bangor, Maine  
Curtis Cos., Inc., Clinton, Iowa  
Dakota Sash & Door Co., Aberdeen, S. Dak.  
Darby, Bogner & Associates, Milwaukee, Wis.  
D'Arcy Co., Inc., Dover, N. H.  
Davidson Sash & Door Co., Inc., Lake Charles, La.  
Dayton Sash & Door Co., Dayton, Ohio  
Delmarva Lumber & Millwork Co., Inc., Philadelphia, Pa.  
Detroit, City of, Department of Public Works, Detroit, Mich.  
Disbrow & Co., Omaha, Nebr.  
Donlin Co., St. Cloud, Minn.  
Farley & Loetscher Manufacturing Co., Dubuque, Iowa  
Fink & Schindler Co., San Francisco, Calif.  
Fischer Lime & Cement Co., Memphis, Tenn.  
Flannagan, Eric G., Henderson, N. C.  
Fort Wayne Builders' Supply Co., Fort Wayne, Ind.  
Foster, R. S., Lumber Co., Indianapolis, Ind.  
Furer, Wm. C., Honolulu, T. H.  
Gibson Door Co., Inc., Utica, N. Y.  
Green Lumber Co., Laurel, Miss.  
Grimm, Albert C., Planing Mill, Evansville, Ind.  
Gulf States Plywood Co., New Orleans, La.  
H & S Lumber Co., Charlotte, N. C.  
Harbor Sales Co., Inc., Washington, D. C.  
Harbor Sales Co., Inc., Baltimore, Md.  
Hastings, A.W., & Co., Inc., Somerville, Mass.

Hawkins Lumber & Warehouse Co., Boston, Mass.  
 Herrick Co., Waterloo, Iowa  
 Huber-Lancot Housewrecking Corp., Buffalo, N. Y.  
 Hussey-Williams Co., Inc., Ozone Park, N. Y.  
 Huttig Sash & Door Co., Charlotte, N. C.  
 Huttig Sash & Door Co., Columbus, Ohio  
 Huttig Sash & Door Company of Texas, Dallas, Tex.  
 Huttig Sash & Door Co., Jacksonville, Fla.  
 Huttig Sash & Door Co., Knoxville, Tenn.  
 Huttig Sash & Door Co., Louisville, Ky.  
 Huttig Sash & Door Co., Miami, Fla.  
 Huttig Sash & Door Co., Nashville, Tenn.  
 Huttig Sash & Door Co., Roanoke, Va.  
 Huttig Sash & Door Co., St. Louis, Mo.  
 Hyde-Murphy Co., Ridgway, Pa.  
 Interstate Sash & Door Co., Canton, Ohio  
 Iron Mountain City Lumber Yard, Iron Mountain, Mich.  
 Jacksonville Sash & Door Co., Inc., Jacksonville, Fla.  
 Kaaz Woodwork Co., Inc., Leavenworth, Kans.  
 Keely, Hal, Plywood Co., Pittsburgh, Pa.  
 Keely, S. S., & Sons, Philadelphia, Pa.  
 Kellogg, Chas. C., & Sons Co., Utica, N. Y.  
 Krauss Bros. Lumber Company of Florida, Tampa, Fla.  
 Latenser, John, & Sons, Omaha, Nebr.  
 Law, Law, Potter & Nystrom, Madison, Wis.  
 Lewis Lumber Co., Spring Lake, N. J.  
 Libbey-Owens-Ford Glass Co., Toledo, Ohio. (General support.)  
 Loeb, Laurence M., White Plains, N. Y.  
 Loetscher & Burch Manufacturing Co., Des Moines, Iowa  
 Logan Lumber Co., Tampa, Fla.  
 Los Angeles, City of, Department of Public Works, Los Angeles, Calif.  
 Lumber & Millwork Company of Philadelphia, Pa.  
 Lumber Yard Supply Co., Great Falls, Mont.  
 Lumbermen's Door & Trim Co., Cleveland, Ohio  
 Mann & Co., Hutchinson, Kans.  
 McClung, C. M., & Co., Knoxville, Tenn.  
 McPhillips Manufacturing Co., Inc., Mobile, Ala.  
 Memphis Sash & Door Co., Memphis, Tenn.  
 Merritt Lumber Yards, Inc., Reading, Pa.  
 Miller & Vrydagh, Terre Haute, Ind.  
 Minot Builders Supply Co., Inc., Minot, N. Dak.  
 Mooser, Wm., San Francisco, Calif.  
 Morgan Co., Oshkosh, Wis.  
 Morrison-Merrill & Co., Salt Lake City, Utah  
 Muhlenberg Bros., Wyomissing, Pa.  
 Nebraska, University of, Lincoln, Nebr.  
 New Mexico Co., Albuquerque, N. Mex.  
 New York Central System, New York, N. Y.  
 Northern Sash & Door Co., Hawkins, Wis.  
 Norwood Sash & Door Manufacturing Co., Norwood, Ohio  
 Nurenburg, W. S., Fort Worth, Tex.  
 Oklahoma Sash & Door Co., Oklahoma City, Okla.  
 Pease Woodwork Co., Cincinnati, Ohio  
 Pickering Lumber Corp., Standard, Calif. (General support.)  
 Porter-Hadley Co., Grand Rapids, Mich.  
 Portsmouth Lumber Corp., Portsmouth, Va.  
 Quigley, J. R., Co., Gloucester City, N. J.  
 Resnikoff, Abraham, New York, N. Y.  
 Rinn-Scott Lumber Co., Chicago, Ill.  
 Roach & Musser Co., Muscatine, Iowa  
 Rock Island Millwork Co., Rock Island, Ill.  
 Rudinger, C. R., Inc., South Kearny, N. J.  
 Sanders Bros. Manufacturing Co., Ottawa, Ill.  
 Sash, Door & Glass Corp., Richmond, Va.  
 Sears, Roebuck & Co., Chicago, Ill.  
 Segelke & Kohlhaus Co., La Crosse, Wis.  
 Semling Menke Co., Merrill, Wis.  
 Seneca Lumber & Millwork Co., Fostoria, Ohio  
 Shenk, Henry, Co., Erie, Pa.  
 Silcrest Co., Wausau, Wis.  
 Smith, Geo. P., Co., Charles City, Iowa  
 Sothman Co., Grand Island, Nebr.  
 Southern Mill & Manufacturing Co., Tulsa Okla.  
 Southwestern Sash & Door Co., Joplin, Mo.  
 Stravs, Carl B., Minneapolis, Minn.  
 Swan Lake Moulding Co., Klamath Falls, Oreg.  
 Sweetwater Sash & Door Co., Sweetwater, Tex.  
 Tabor City Lumber Co., Tabor City, N. C.  
 Taylor, Ellery Kirke, Haddonfield, N. J.  
 Tennessee Glass Co., Inc., Nashville, Tenn.  
 Throop-Martin Co., Columbus, Ohio  
 Trexler Lumber Co., Allentown, Pa.  
 Tulane Hardwood Lumber Co., Inc., New Orleans, La.  
 Vetter Manufacturing Co., Stevens Point, Wis.  
 Villaume Box & Lumber Co., St. Paul, Minn.  
 Walling Sash & Door Co., Wichita, Kans.  
 Watertown Sash & Door Co., Watertown, S. Dak.  
 Weinle, Aug. F., Lumber Co., Columbia, Ill.  
 Welch, Carroll E., Huntington, N. Y.  
 Whissel, L. N., Lumber Co., Inc., Buffalo, N. Y.  
 White Pine Sash Company of Illinois, Chicago, Ill.  
 Whitmer-Jackson Co., Inc., Buffalo, N. Y.  
 Whittier Lumber & Millwork Co., Newark, N. J.  
 Wichita Building Material Co., Inc., Wichita, Kans.  
 Wolverine Shingle & Lumber Co., Detroit, Mich.  
 Zimmerman, A. C., Los Angeles, Calif.

#### FEDERAL GOVERNMENT AGENCIES

Agriculture, Department of, Division of Procurement and Property Management.  
 Army, Department of, Procurement Division Standards Branch.  
 Forest Service, U. S. Department of Agriculture, Missoula, Mont.  
 Veterans Administration, Procurement Division.